CITY OF MILPITAS
Building & Safety Department
455 E. Calaveras Blvd.
Milpitas, CA 95035
408-586-3240
www.ci.milpitas.ca.gov

RESIDENTIAL BATHROOM REMODEL

1. PERMIT INFORMATION:

- ❑ A Building Permit may be issued only to a State of California Licensed Contractor or the Homeowner.
- ❑ Building Permits may be issued to a Homeowner for construction if that Homeowner indicates the intent to do his or her own work personally. If the inspection indicates the Homeowner is unable to perform the work satisfactorily, then a licensed contractor must perform the work.
- ❑ If the Homeowner is planning to hire workers, State Law requires the Homeowner to obtain Worker's Compensation Insurance. Proof of this insurance is required prior to inspection.

2. BUILDING REQUIREMENTS

- ❑ The remodeling of an existing bathroom requires a Permit. A Combination permit can be obtained that includes building, electrical, mechanical and plumbing permits all in one.
- ❑ All work must comply with the 2007 Building Code Standards (Building, Electrical, Mechanical, Plumbing and Energy) and the 2008 Milpitas Municipal Code.
- ❑ **On-line permits can only be obtained for bathroom remodels that do not include any modifications to the existing wall and/or ceiling framing, or the relocation of any fixtures.**
- ❑ If any changes will be made to the existing framing, or if any fixtures will be relocated, drawings must be submitted and approved and the permit obtained in person from the Permit Center, Building & Safety Department, 455 E. Calaveras Blvd. The drawings required may include:
    - Floor plan: Indicate walls, windows (size and type), and door sizes. Show adjoining rooms and label the use of each room. Show location of all cabinets (upper and lower) and plumbing fixtures and show their dimensions.
    - Ceiling plan: If needed to show ceiling heights, electrical and mechanical installed in the ceiling.
    - Structural: If any walls are being removed or relocated, show existing framing that shows the walls were not bearing, or if they were, how the support is being replaced.
    - Electrical, mechanical & plumbing: Show electrical receptacles, electrical fixtures with switching, and ventilation. May be included on the floor plan.
    - Details and Notes: Provide all details and notes required to explain the work.
    - All drawings must be signed by the person preparing them.
- ❑ **Smoke alarms:** When the value of the work exceeds $1,000, smoke detectors must be installed if they do not exist as follows: in each sleeping room, at a point centrally located in the corridor or area giving access to each separate sleeping area, and on each story. In existing construction, detectors may be battery operated. See CBC Section 907.2.10 and the separate handout on Smoke Alarms for more information.
- ❑ **Spark arrester:** When the value of the work exceeds $1,000, a spark arrester must be installed on fireplace chimneys if one does not exist per MMC Section II-3-2.06. Spark arresters shall be constructed in conformance with CBC Section 2113.9.1 or 2802.1. See separate handout on Spark Arresters for more information.

3. ROOM REQUIREMENTS

- ❑ **Ceilings:** Bathrooms and toilet rooms must have a ceiling height of not less than 7 feet (CBC 1208.2).

- ❑ **Safety glazing:** Glazing in doors and enclosures for bathtubs and showers shall be safety glazing (CBC 2406).

- ❑ **Shower & tub walls:** Shower compartments and walls above bathtubs with installed shower heads shall be finished with a smooth, nonabsorbent surface to a height not less than 70 inches above the drain inlet (CBC 1210.3).

- ❑ **Base for tile:** Cement, fiber-cement or glass mat gypsum backers in compliance with ASTM C 1178, C 1288 or C 1325 and installed in accordance with manufacturer recommendations shall be used as a base for wall tile in tub and shower areas and wall and ceiling panels in shower areas. Water-resistant gypsum backing board shall be used as a base for tile in water closet compartment walls when installed in accordance with GA-216 or ASTM C 840 and manufacturer recommendations. Regular gypsum wallboard is permitted under tile or wall panels in other wall and ceiling areas when installed in accordance with GA-216 or ASTM C 840. (CBC 2509.2). Water resistant gypsum backing board shall not be used in the following locations (CBC 2509.3):

    - Over a vapor retarder in shower or bathtub compartments.
    - Where there will be direct exposure to water or in areas subject to continuous high humidity.
    - On ceilings where frame spacing exceeds 12 inches o.c. for ½" thick water-resistant gypsum backing board and more than 16 inches o.c. for 5/8" thick water-resistant gypsum backing board.

- ❑ **Waterproof joints:** Built-in tubs with showers shall have waterproof joints between the tub and adjacent wall (CBC 1210.4).

4. ELECTRICAL REQUIREMENTS

- ❑ Listed or labeled equipment shall be installed in accordance with the manufacturer's requirements (CEC 110.3(B)).

- ❑ New lighting or receptacles added may not overload existing circuits or panels (CEC 210.23).

- ❑ Ground-fault circuit-interrupter protection for personnel shall be provided for cables installed in electrically heated floors of bathrooms and in hydromassage bathtub locations (CEC 424.44(G).

- ❑ **Lighting:**

    - At least one wall switch-controlled (or occupancy sensor controlled) lighting outlet shall be installed in every bathroom (CEC 210.70(A)(1).

    - If adding or replacing the lighting, it shall be high efficacy fixtures (e.g. fluorescent) or be controlled with an occupant sensor with controls that do not allow the fixtures to be manually turned on or allow the fixtures to be always on (Calif. Energy Code 150(k)3).

    - Recessed lighting in insulated ceilings must be rated for direct insulation contact (IC), certified as airtight construction (AT), and must have a sealed gasket or caulking between the housing and ceiling to prevent the flow of heated or cooled air out of the living areas and into the ceiling cavity (Calif. Energy Code 150(k)5).

    - Fixtures installed in wet or damp locations shall be installed so that water cannot enter or accumulate in wiring compartments, lamp holders, or other electrical parts. All fixtures installed in wet locations shall be marked, "Suitable for Wet Locations". (CEC Section 410.4(A)).

    - Cord-connected fixtures, chain, cable or cord-suspended fixtures, lighting track, pendants, or ceiling-suspended (paddle) fans shall not be located within a zone measured 3 feet horizontally and 8 feet vertically from the top of the bathtub rim or shower stall threshold. This zone is all encompassing and includes the zone directly over the tub or shower stall. Other fixtures located in this zone shall be listed for damp locations, or wet locations if subject to shower spray. (CEC 410.4(D).

- Switches shall not be installed within wet locations in tub or shower spaces unless installed as part of listed tub or shower assembly (CEC 404.4).

❑ **Branch Circuits:** At least one 20-ampere branch circuit shall be provided to supply bathroom receptacle outlet(s) (CEC 210.11(C)(3). Such circuits shall have no other outlets, except where the circuit supplies a single bathroom, outlets for other equipment within the same bathroom shall be permitted to be supplied in accordance with CEC 210.23(A)(1) and (A)(2).

❑ **Receptacles:**

- At least one (1) wall receptacle outlet shall be installed in each bathroom within 36 inches of the outside edge of each basin. The receptacle outlet shall be located on a wall or partition that is adjacent to the basin or basin countertop. (CEC Section 210.52(D)).

- All 125 volt, 15 and 20 ampere receptacles installed in bathrooms shall be protected with GFCI(s) (CEC 210.8(A)(1)).

- Receptacles shall not be installed within or directly over a bathtub or shower stall (CEC406.8(C)).

❑ **Hydromassage Bathtubs:**

- Hydromassage bathtubs and their associated electrical components shall be protected by a ground-fault circuit interrupter. All 125-volt, single-phase receptacles not exceeding 30 amperes and located within five (5) feet measured horizontally of the inside walls of a hydromassage tub shall be protected by a ground-fault circuit interrupter(s). (CEC 680.71).

- Hydromassage bathtub electrical equipment shall be accessible without damaging the building structure or building finish (CEC 680.73).

- All metal piping systems and all grounded metal parts in contact with the circulating water shall be bonded together using a copper bonding jumper, insulated, covered, or bare, not smaller than 8 AWG solid (CEC 680.74).

5. PLUMBING REQUIREMENTS

❑ **Approvals:** All pipe, fittings, traps, fixtures, materials and devices used in a plumbing system shall be listed or labeled (third-party certified) by a listing agency and shall be free of defects (CPC 310.1.1).

❑ **Workmanship:** Plumbing systems shall be installed in a manner conforming to the CPC, applicable standards, and the manufacturer's installation instructions. Burred ends of all pipe and tubing shall be reamed to the full bore of the pipe or tube, and all chips shall be removed. (CPC 310.0).

❑ **Fixtures:** Fixtures shall be set level and in proper alignment with reference to adjacent walls. No water closet shall be set closer than fifteen (15) inches from its center to any side wall or obstruction (cabinet, bathtub, shower) nor closer than thirty (30) inches center to center to any similar fixture. The clear space in front of any water closet shall not less than 24 inches. (CPC 407.6).

❑ **Water closets:** Fixtures shall use a maximum average consumption of not more than 1.6 gallons per flush. Flanges must be installed above floor level and secured with corrosion-resistant fasteners. (CPC 402.2).

❑ **Shower size:** The shower compartment shall have a minimum finished interior of 1024 square inches and shall also be capable of encompassing a 30 inch diameter circle. The required area and dimensions shall be measured at a height equal to the top of the threshold and at a point tangent to its centerline. The minimum area and dimensions shall be maintained to a point 70 inches above the shower drain outlet with no protrusions other than the fixture valve or valves, shower head, soap dishes, shelves, and safety grab bars or rails. Fold-down seats in accessible shower stalls shall be permitted to protrude into the 30 inch circle. Where an existing bathtub is replaced by a shower receptor, it may have minimum overall dimensions of 30 inches in width and 60 inches in length. (CPC 411.7).

- **Shower door:** Shower doors must not encroach into the required thirty (30) inch circle. Shower doors shall open so as to maintain a minimum twenty-two (22) inch unobstructed opening for egress. (CPC Section 411.6).

- **Shower receptor:** Shower receptors shall be constructed of vitrified china or earthenware, ceramic tile, porcelain-enameled metal, fiberglass, resin, or of such other material that conforms to acceptable standards as referenced in CPC Table 14-1. Each shower receptor shall be an approved type and be so constructed as to have a finished dam, curb or threshold that is at least one (1) inch lower than the sides and back of such receptor. In no case shall any dam or threshold be less than two (2) inches or more than nine (9) inches in depth when measured from the top of the dam or threshold to the top of the drain. Each such receptor shall be provided with an integral nailing flange to be located where the receptor meets the vertical surface of the finished interior of the shower compartment. The flange shall be watertight and extend vertically a minimum of one (1) inch above the top of the sides of the receptor. The finished floor of the receptor shall slope uniformly from the sides toward the drain not less than one-quarter (1/4) inch per foot nor more than one-half (1/2) inch per foot. Thresholds shall be of sufficient width to accommodate a minimum twenty-two (22) inch door. Shower doors shall open so as to maintain a minimum twenty-two (22) inch unobstructed opening for egress. (CPC 411.5 & 411.6).

- **On-site built-up shower receptors** shall be constructed as follows (CPC 411.8):

  - Shower receptors built directly on the ground shall be watertight and shall be constructed from approved-type dense, nonabsorbent and non-corrosive materials. Each such receptor shall be adequately reinforced, shall be provided with an approved flanged floor drain designed to make a watertight joint in the floor, and shall have smooth, impervious, and durable surfaces.
  - When shower receptors are built above-ground, the subfloor and rough side of walls to a height of not less than three (3) inches above the top of the finished dam or threshold shall be first lined with sheet plastic*, lead*, or copper*, or shall be lined with other durable and watertight materials.
    *Lead and copper subpans or linings shall be insulated from all conducting substances other than their connecting drain by fifteen (at) pound asphalt felt or its equivalent, and no lead pan or liner shall be constructed of material weighting less than four (4) pounds per square foot. Copper pans or liners shall be at least No. 24 B & S Gauge (0.02 inches). Joints in lead pans or liners shall be burned. Joints in copper pans or liners shall be soldered or brazed. Plastic pans shall not be coated with asphalt-based materials.
  - All lining materials shall be pitched one-quarter (1/4) inch per foot to weep holes in the subdrain of a smooth and solidly formed subbase. All such lining materials shall extend upward on the rough jambs of the shower opening to a point no less than three (3) inches above the top of the finished dam or threshold and shall extend outward over the top of the rough threshold and be turned over and fastened on the outside face of both the rough threshold and the jambs.
  - Nonmetallic shower subpans or linings may be built up on the job site of not less than three (3) layers of standard, grade fifteen (15) pound asphalt-impregnated roofing felt. The bottom layer shall be fitted to the formed subbase and each succeeding layer thoroughly hot-mopped to that below. All corners shall be carefully fitted and shall be made strong and watertight by folding or lapping, and each corner shall be reinforced with suitable webbing hot-mopped in place. All folds, laps, and reinforcing webbing shall extend at least four (4) inches in all directions from the corner, and all webbing shall be of approved type and mesh, producing a tensile strength of not less than fifty (50) psi in either direction. Nonmetallic shower subpans or linings may also consist of multilayers of other approved equivalent materials suitably reinforced and carefully fitted in place on the job site as elsewhere required in this section.
  - Linings shall be properly recessed and fastened to approved backing so as not to occupy the space required for the wall covering and shall not be nailed or perforated at any point that may be less than one (1) inch above the finished dam or threshold. An approved-type subdrain shall be installed with every shower subpan or lining. Each such sub-drain shall be of the type that sets flush with the subbase and shall be equipped with a clamping ring or other device3 to make a tight connection between the lining and the drain. The subdrain shall have weep holes into the waste line. The weep holes located in the subdrain clamping ring shall be protected from clogging.
  - All shower lining materials shall conform to approved standards acceptable to the Building Official.

- **Tests for Shower Receptors:** Shower receptors shall be tested for watertightness by filling with water to the level of the rough threshold. The test plug shall be so placed that both upper and under sides of the subpan shall be subjected to the test at the point where it is clamped to the drain. (CPC 411.8.1).

- **Valve location:** At showers and tub/shower combinations, valves shall be located on sidewall of shower compartment to allow bather to adjust the valves prior to stepping into the shower spray (CPC 411.10).

- **Water Supply Riser:** Every water supply riser from the shower valve to the showerhead outlet, whether exposed or not, shall be securely attached to the structure (CPC 411.11).

- **Bathtubs and Whirlpool Bathtubs:** Unless otherwise listed, all bathtubs and whirlpool bathtubs shall comply with the following (CPC 414.0):

  - A removable panel shall be provided to access and remove the pump. Whirlpool pump access located in the crawl space shall be located no more than twenty (20) feet from an access door, trap door, or crawl hole.
  - The circulation pump shall be located above the crown weir of the trap.
  - The pump and the circulation piping shall be self-draining to minimize water retention in accordance with standards referenced in CPC Table 14-1.
  - Suction fittings on whirlpool bathtubs shall comply with the listed standards.
  - The maximum hot water temperature discharging from the bathtub and whirlpool bathtub filler shall be limited to 120^{O}F. The water heater thermostat shall not be considered a control for meeting this provision.

- **Scalding protection:** Showers and tub/shower combinations shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal shock protection. These valves shall conform to ASSE 1016. (CPC 418.0).

- **Drains and vents:** Only approved pipe and fittings shall be installed. Piping shall be sized according to their Drainage Fixture Count loads and comply with the following:

  - Drain and vent materials shall be cast iron, galvanized steel, galvanized wrought iron, copper, brass, Stainless Steel 304 or 316L, Schedule 40 ABS or PVC DWV plastic pipe, or extra strength vitrified clay pipe (CPC 701.1 & 903.1).
    - No galvanized wrought-iron or steel pipe shall be used under ground and shall be kept at least six (6) inches above ground.
    - ABS and PVC DWV piping shall be installed in accordance with Installation Standard 5 & 9.
    - Vitrified clay pipe and fittings shall not be used above ground and shall be kept at least twelve (12) inches below ground.
    - Copper tube shall have a weight of not less than copper drainage tube type DWV.
    - Stainless steel 304 pipe and fittings shall not be installed under ground and shall be kept at least six (6) inches above ground.
  - Drainage piping systems shall be sized in accordance with CPC Section 703.0. Vent piping systems shall be sized in accordance with CPC Section 904.0.
    - Water closets require minimum 3" trap and drain and 1 ½" vent.
    - Bathtubs require minimum 1 ½" trap and drain and 1 ¼" vent.
    - Showers require minimum 2" trap and drain and 1 ¼" vent.
    - Lavatories require minimum 1 ¼" trap (1 ½" if set of two) and drain and 1 ¼" vent.
  - The aggregate cross-sectional area of all vents through the roof shall not be less than the building sewer (CPC 904.1).
  - Vent pipes shall extend through its flashing at the roof not less than six (6) inches above the roof and twelve (12) inches from a vertical wall, not less than ten (1) feet from or three (3) feet above any openable window, door, opening, air intake, or vent shaft, nor less than three (3) feet from a property line (CPC 906.0).
  - When joining ABS to PVC a solvent cement transition joint using listed transition solvent cement (CPC 316.1.6).
  - Must use proper fittings for changes of direction in accordance with 706.0.
  - Piping shall be installed with a minimum slope ¼" per foot (CPC 708.0).
  - Where a fixture is installed on a floor level that is lower than the next upstream manhole cover of the public sewer, a backwater valve shall be installed in accordance with CPC Section 710.0.
  - Cleanouts must be accessible, located at the upper terminal of each branch or run of piping, and sized per CPC Table 7-6 (CPC 707.0).
    - Cleanouts may be omitted on a horizontal drain less than five (5) feet in length.
    - Cleanouts are not required on piping that is above the floor level of the lowest floor.
    - Cleanouts in piping two (2) inches or less shall be installed with a clearance of not less than twelve (12) inches in front of the cleanout.
    - Cleanouts in piping larger than two (2) inches shall be installed with a clearance of not less than eighteen (18) inches in front of the cleanout.

  - Cleanouts in under floor piping shall be extended to or above the finished floor or shall be extended outside the building when there is less than eighteen (18) inches of vertical overall clearance or when there is less than thirty (30) inches horizontal clearance from the means of access to the cleanout. No cleanout shall be located more than twenty (20) feet from the access door, trap door, or crawl hole.
- Testing: The piping of the plumbing, drainage and venting systems shall be tested with water or air (except plastic shall only be by water). Water test shall be done with a ten (10) foot head of water. Air shall be done with five (5) pounds per square inch. The water or air must be held in the system for a minimum of fifteen (15) minutes prior to inspection. (CPC 712.0).

- ❑ **Supports:** All piping shall be supported at intervals not to exceed those shown in CPC Table 3-2.

- ❑ **Pipe:** Joints and connections shall be in accordance with CPC Section 316.0. Water piping shall also comply with Section 606.0.

- ❑ **Water supply and distribution:** Water supply and distribution piping shall be in accordance with CPC Chapter 6. Water piping materials may be brass, copper, cast iron, galvanized iron, galvanized steel, CPVC, or PEX-AL-PE. CPVC piping must be installed in accordance with Section 604.1.1. PEX and PEX-AL-PEX piping is prohibited. Piping systems shall be sized in accordance with CPC Section 610.0. The minimum size of any branch shall be ½".

6. MECHANICAL REQUIREMENTS

- ❑ **Mechanical ventilation:** Bathrooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the California Mechanical Code (CBC 1203.4.2.1).

- ❑ **Ventilation:** Rooms shall be provided with natural ventilation in accordance with CBC Section 1203.4 or mechanical ventilation in accordance with the California Mechanical Code (CBC 1203.1). Natural ventilation shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

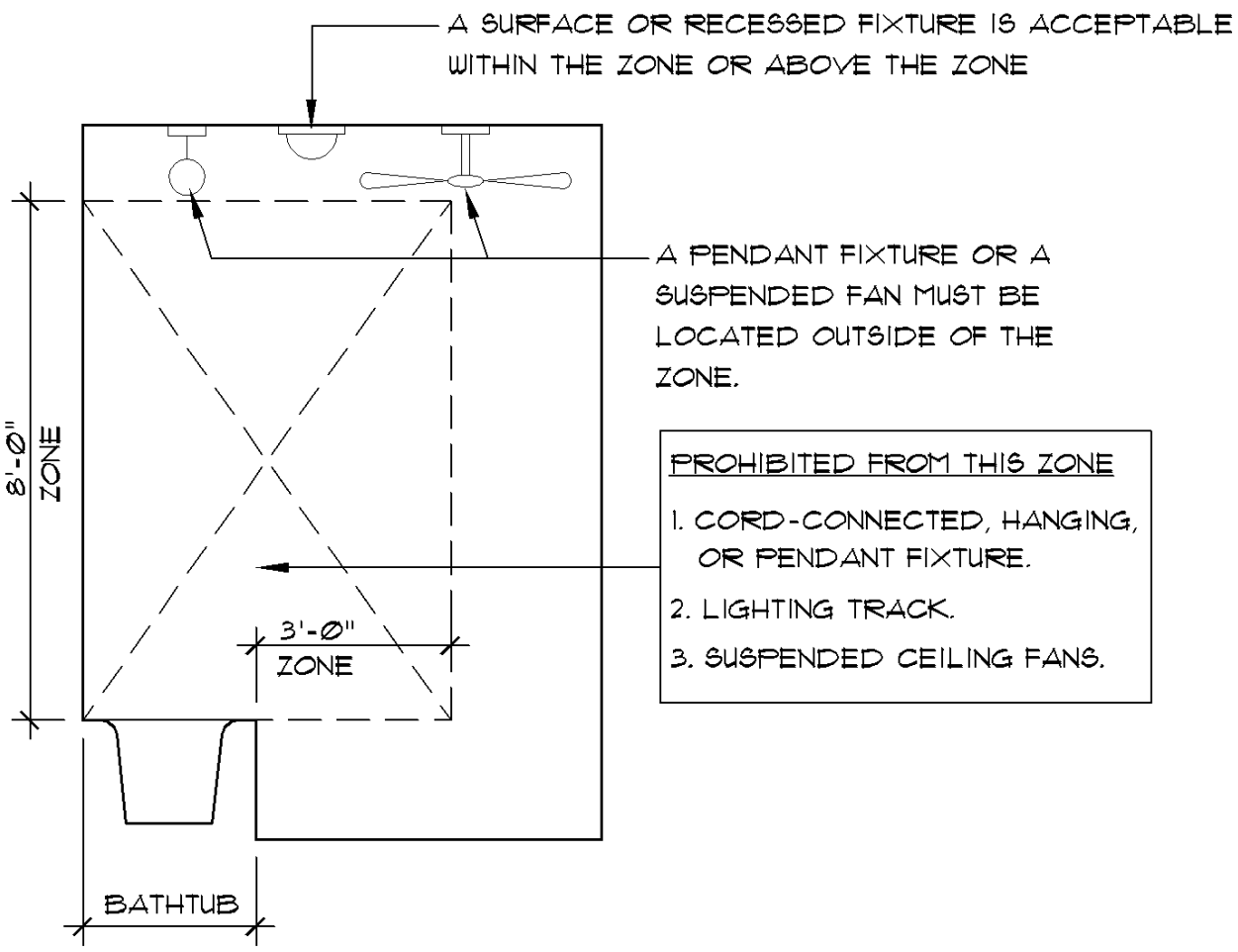
- ❑ **Fan exhaust termination:** Exhaust ducts shall terminate outside the building and be equipped with back-draft dampers (CMC 504.1) and shall terminate a minimum of 3 feet from property line and building openings (CMC 504.5).

7. INSPECTIONS:

- ❑ The number of inspections required depends on the type of shower receptor installed and the overall scope of the work. A rough plumbing and electrical inspection should be scheduled for any work installed in the framing, and a shower pan test scheduled, prior to installation of any wallboard. Additional inspections may be needed based on extent of the project. Review with your inspector during the first inspection the requirements for your project. The final inspection should be scheduled after all the work is completed. For each inspection, the Permit Card and the Approved Job Copy of the Drawings (if any) must be presented to the inspector. Permits expire 180 days after the last passed inspection.

8. QUESTIONS:

- ❑ If you have any questions regarding your project contact the Building & Safety Department at (408) 586-3240.


A SURFACE OR RECESSED FIXTURE IS ACCEPTABLE WITHIN THE ZONE OR ABOVE THE ZONE
A PENDANT FIXTURE OR A SUSPENDED FAN MUST BE LOCATED OUTSIDE OF THE ZONE.
PROHIBITED FROM THIS ZONE
1. CORD-CONNECTED, HANGING, OR PENDANT FIXTURE.
2. LIGHTING TRACK.
3. SUSPENDED CEILING FANS.
8'-Ø" ZONE
3'-Ø" ZONE
BATHTUB